



PATENT
P56293

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Myong-Su Choe

Serial No.: 10/022,210

Examiner: Olms, Douglas W

Filed: 20 December 2001

Art Unit: 2661

For: **APPARATUS AND METHOD FOR PERFORMING HIGH-SPEED
ROUTING LOOKUP AND MANAGING ROUTING / FOR WARDING
TABLES**

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O.Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with 37 C.F.R. §1.56, and §§1.97 and 1.98 as amended, Applicant cites, describes, and provides copies of the following art references:

OTHER DOCUMENTS:

- Japanese Office Action in connection with Korean Patent Application No. 2001-7568, issued on 6 September 2005.
- IEEE INFORCOM'01, Vol.3, pp1444-1453 to F. Ergun *et al.*, entitled *Scalable High Speed IP Routing Lookups*, published on April 2001.

DISCUSSION

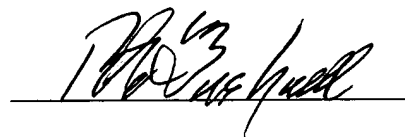
As written in Japanese Office Action in applicant's corresponding Korean Patent Application No. 2001-7568 corresponding to applicant's above-captioned U.S. Patent Application, **F. Ergun *et al.* IEEE INFOCOM '01** discusses that Internet address lookup is a challenging problem because of increasing routing table sizes, increased traffic, higher speed links, and the migration to 128 bit IPv6 addresses. IP routing lookup requires computing the best matching prefix, for which standard solutions like hashing were believed to be inapplicable. The best existing solution we know of, BSD radix tries, scales badly as IP moves to 128 bit addresses. Our paper describes a new algorithm for best matching prefix using binary search on hash tables organized by prefix lengths. Our scheme scales very well as address and routing table sizes increase: independent of the table size, it requires a worst case time of $\text{Log}_2(\text{address bits})$ hash lookups. Thus only 5 hash lookups are needed for IPv4 and 7 for IPv6. We also introduce Mutating Binary Search and other optimizations that, for a typical IPv4 backbone router with over 33,000 entries, considerably reduce the average number of hashes to less than 2, of which one hash can be simplified to an indexed array access. We expect similar average case behavior for IPv6.

Pursuant to 37 CFR § 1.97 (e)(1), that each item of information contained in the Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign patent application not more than (3) three months prior to the filing of the Information Disclosure Statement.

The citation of the foregoing references is not intended to constitute an assertion that other or more relevant art does not exist. Accordingly, the Examiner is requested to make a wide-ranging and thorough search of the relevant art.

No fee is incurred by this Statement.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'R. E. Bushnell', is written over a horizontal line.

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**INFORMATION DISCLOSURE STATEMENT****PTO-1449 (PAGE 1 OF 1)**

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FILING DATE 20 December 2001

GROUP 2661

U.S. PATENT DOCUMENTS

EXAMINER	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE

FOREIGN PATENT DOCUMENTS**TRANSLATION**

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)

	Japanese Office Action in connection with Korean Patent Application No. 2001-7568, issued on 6 September 2005.
	IEEE INFORCOM' 01, Vol.3, pp1444-1453 to F. Ergun <i>et al.</i> , entitled <i>Scalable High Speed IP Routing Lookups</i> , published on April 2001.

EXAMINER:

DATE CONSIDERED:

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP §609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.